As a result of the excursion, we doubt that there are rock-wallabies about the Moroka. But one possible habitat remains to be examined—a cliffy tract still further downstream than the area we explored. That is a task for another day.

A Record of the Beaked Whale *(Mesoplodon layardii)* in Victorian Waters

By R. M. WARNEKE*

On June 23, 1962, Mr F. B. O'Brien, a Fisheries and Wildlife Officer stationed at Port Fairy, reported that a small whale had been found at Light House Bay, Griffith Island, near the township of Port Fairy. It was dead when first discovered, but as blood was still seeping from the mouth and from wounds on the head, it is likely that it had died shortly before it was washed onto the beach. School children from the nearby township soon mutilated the body, hacking off the tip of the right tail-fluke and cutting into the belly. Fortunately Mr W. Murphy, Head Teacher of the Port Fairy Consolidated School, obtained several 35 mm. colour photographs of the specimen before it was disturbed. It was then lying on its left side in a slight depression in the sand where it had been left by the tide.

As the locality is only a short distance from the township, the local Harbour Authorities disposed of the carcase by burying it where it lay. This prompt action had the secondary effect of protecting the specimen from further mutilation.

Descriptions furnished by Miss G. Bowker and Mr F. B. O'Brien indicated that the whale was seventeen feet in length and dark grey in colour. The fore-part of the head was long, narrow and tapering. The mouth was closely examined for teeth, but none were found in either jaw. Miss Bowker suggested that it was a beaked whale and this was subsequently confirmed by the photographs.

On July 31, in company with Mr O'Brien and Mr F. T. Baum of the Fisheries and Wildlife Department, I visited the locality and exhumed the fore-part of the specimen. Decomposition had not proceeded as far as expected and the carcase was found to be relatively intact. It was, however, impossible to obtain accurate flesh measurements so the head was removed and defleshed on the spot by boiling.

When the skull had been cleaned, the anterior portion of the rostrum and mandible were found to be badly damaged and the right ramus was broken transversely about half-way along its length. A single pair of teeth were found embedded in the lower jaw, slightly forward of the posterior margin of the mandibular symphysis. Their form and position, as shown in Figure 2, are typical of an adult female Layard's beaked whale,

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Mesoplodon layardii (Gray), (McCann, 1962).

The whale had suffered some superficial cuts about the head, as noted previously. These injuries may have been caused by the body washing over rocks or have been the result of an accident which killed the animal. The severe injuries to the extremity of the skull and mandible suggest a head-on collision of some force and, as the body wounds are confined to the head, the latter explanation is likely. Hale (1931) suggested that the stranding of two specimens near Victor Harbour, South Australia, occurred after they were fouled by rocks.

External Characters

As the total length was the only precise information given in the descriptions, the photographs taken by Mr W. Murphy are the only record of the external features. In size and form it compares closely with a female specimen cast up at Victor Harbour (Hale, 1931). Of interest is the rather distinct pattern of light and dark grey (Fig. 1) which is very similar to that shown on a drawing of the species figured by Pearson (1936). However, as Hale (1959) records that the life colouration of a specimen stranded on Kangaroo Island altered immediately after death, it is of doubtful significance.

Skull

The skull is similar to, though proportionately larger than, an example of unknown sex from Port Victoria, South Australia, figured by Hale (1931), (S.A. Mus. Reg. No. M.2853). In proportion the beak of the Port Fairy specimen is considerably longer. Fortunately sufficient pieces of the damaged rostrum were recovered to enable almost complete reconstruction; however no fragments of the anterior portion of the mandible were found. The skull is in the National Museum of Victoria, Melbourne, Reg. No. C.3758.

The foramen magnum is

Figure 1.

The whale (*Mesoplodon layardii*) as found on a beach near Port Fairy.

The inset shows the shape of the tail fluke and the position of the dorsal fin.

(*Photos: W. Murphy*)

slightly asymmetrical with the vertical axis inclined slightly to the right. The mesorostral groove is filled with light, cancellous bone for approximately two-thirds of its length. In this groove the vomer originates at a point 208 mm. from the tip of the rostrum but it is not obvious as it appears to have been squeezed into a very narrow plate by thickening of the premaxillae. Ventrally, the visible portion appears 225 mm. from the tip of the rostrum, is 325 mm. in length and is fusiform in shape. As in the Port Victoria example, the premaxillary foramina are almost in line and are in advance of the maxillary foramina. The rami of the mandible are firmly joined by cartilage but the symphysis shows no sign of ossification. The mandibular teeth are deeply socketed, with the triangular denticles showing slightly forward of the posterior margin of the symphysis. On both teeth the denticle projects outwards and slightly downwards (Figs. 2 and 3).

Dimensions of Teeth

	Right	Left
Length of base	89 mm.	90 mm.
Greatest depth	51	50
Greatest width	10.5	10.5
Weight	37 gm.	36 gm.

Dimensions of Skull*

	mm.
†Total length (condylobasal)	1050
Height from vertex to inferior border of pterygoids	400
†Tip of rostrum to level of antorbital notches	725
†Tip of rostrum to posterior border of pterygoids	910
Greatest depth of rostrum	101
Breadth between orbits	415
Breadth between antorbital tubercles	274
Breadth of premaxillae in front of nares	161
Greatest breadth of anterior nares	57
Length of tympanic bullae	42
Breadth of tympanic bullae	29
Height of supra-occipital (from upper margin of foramen magnum)	217
Width of foramen magnum	48
Width of condyles	142
Height of condyles	92
Greatest depth of mandible	146
Length from coronoid to posterior margin of symphysis	610

* Terms, after Hale (1931).
† Subject to error through reconstruction of damaged portions.

Measurement of length of mandible and length of symphysis were not possible.

Remarks

Mesoplodon layardii is one of a group of small to medium-sized whales which comprise the family Ziphiidae. The five genera in this family; *Ziphius, Berardius, Hyperoodon, Mesoplodon* and *Tasmacetus*, include some of the least known species in the order Cetacea. As they are not sought after commercially, most of the available information on the group has been gleaned from the relatively few specimens cast up on inhabited coasts. For this reason many species are regarded as rare but, as beaked whales appear to prefer open waters, the infrequency of records is not surprising. When commenting on Australian strandings, Hale (1959) expressed the opinion that—

> In all probability the smaller whales occurring off our coasts are by no means as rare as would appear from published records. It is certain that many strandings are not observed as whales surely must be cast up from time to time on uninhabited portions of the vast coastline of Australia.

The peculiar bird-like shape of the head is characteristic of the Ziphiidae and is especially well developed in the genus *Mesoplodon*. In the flesh, males are readily distinguished from females by the presence of one or two pairs of prominent teeth in the anterior portion of the lower jaw. Females possess the corresponding teeth but they remain undeveloped and hidden below the gums* (McCann, 1962). Rudimentary teeth may be found in some specimens (Hale, 1932, p. 493), either in the lower or upper jaw or both, but they are merely embedded in the gums and are usually shed or eventually worn away. The one exception, *Tasmacetus*, retains long rows of small functional teeth in both jaws in addition to a larger pair corresponding to those found in related genera.

The size, shape and position of the mandibular teeth are characteristic of each species (Flower, 1878. McCann, 1962). In males their function is that of offence as the bodies of old specimens frequently carry scars, probably inflicted by rivals during the mating season (Kellogg, 1940. McCann, 1962). There is little need of such teeth for feeding as squid and other cuttlefish form the major portion of the diet.

* In *Berardius* both sexes possess functional teeth.

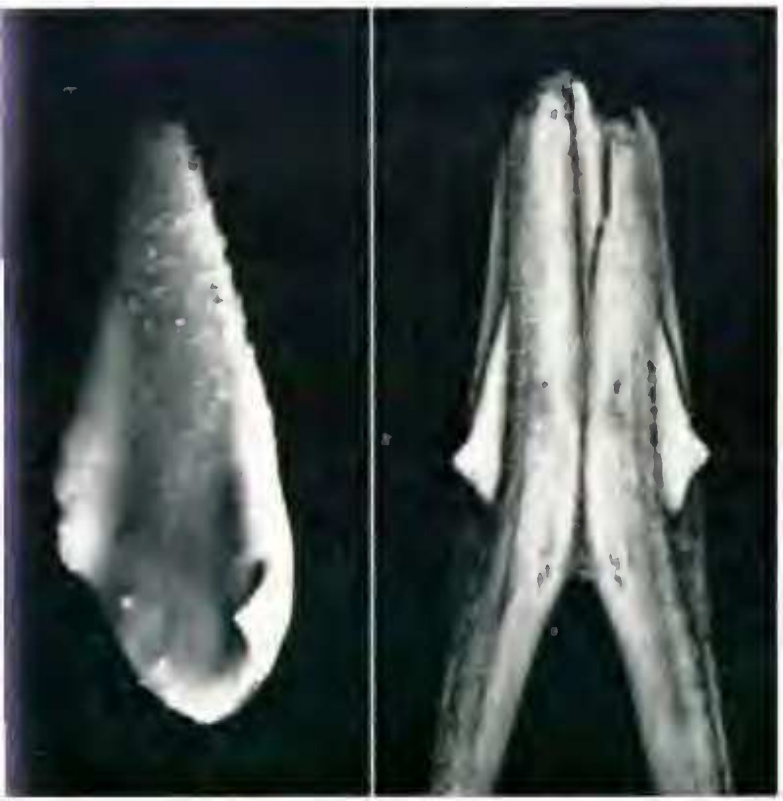

Figure 2.

Right: Anterior portion of the mandible showing the position of the teeth.

Left: Left tooth extracted.

(*Photos: J. Cooper, Fisheries and Wildlife Department*).

In *M. layardii*, males are distinguished by a pair of strap-like, flattened tusks which angle backward and curve over the top of the upper jaw. In aged examples these teeth often meet or even cross above the rostrum so that the jaw movement is restricted and feeding must become a problem (Sutton, 1885). The triangular denticles (Fig. 2) are present near the extremity but are usually worn down in old specimens. The teeth are such a striking feature of the species that it is often referred to as the Strap-toothed Whale.

Of the Ziphioid whales occurring in Australian waters, *M. layardii* is the species most frequently recorded. It is known to occur from Queensland to Tasmania and Western Australia (its occurrence in Western Australia has been noted recently by Hale, personal communication). The Port Fairy specimen constitutes the first Victorian record of the species.

There are only two other records of Ziphioid whales in Victorian waters:

(1) A skull of a young example of the Southern Beaked Whale, *Mesoplodon grayi* Haast, was found near Cape Schanck on July 9, 1931 by Miss E. Battersby. It is in the National Museum, Melbourne, Reg. No. R.13590. This example compares closely with a skull figured by Hale (1932) from Younghusband Peninsula, South Australia.

(2) A Ziphioid whale eighteen feet in length was washed on to rocks at Cape Bridgewater in western Victoria in 1950. Two photographs were reproduced in *Wild Life* (see References) and it was tentatively identified as *M. grayi*. However, the shape of the head (partly obscured in the photographs) is suggestive of the Bottle-nosed Whale, *Hyperoodon planifrons* Flower. The latter species was recorded from Port Victoria, South Australia, by Hale (1931).

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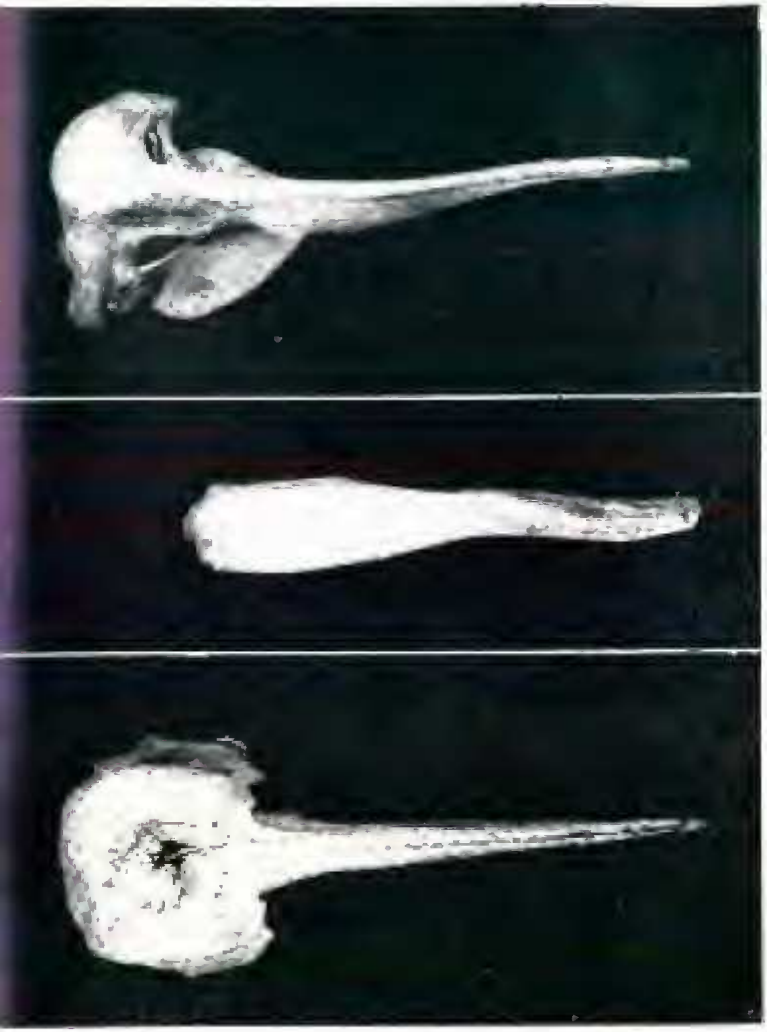

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